Silicide Nanowire Growth

Motivation:
Transition metal deposition on silicon causes the reaction to a metal silicide. At low coverages, the silicide can self-assemble into high-aspect ratio nanowires, which may serve as quantum devices or interconnects for nanoelectronics.

Result and Significance: Using the CFN low-energy electron microscope (LEEM), the growth of individual silicide nanowires was observed in real time during transition metal deposition. These observations are being used to understand the nucleation and growth of the nanowires, and the role of dissolved metal in the bulk of the silicon substrate, with the ultimate goal of controlling nanowire growth.

Fig. 1:
The CFN LEEM.

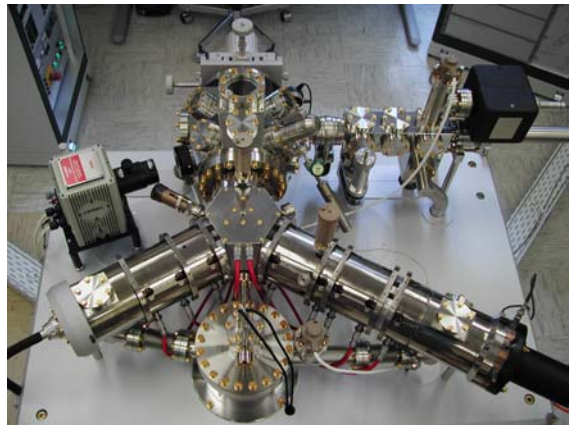
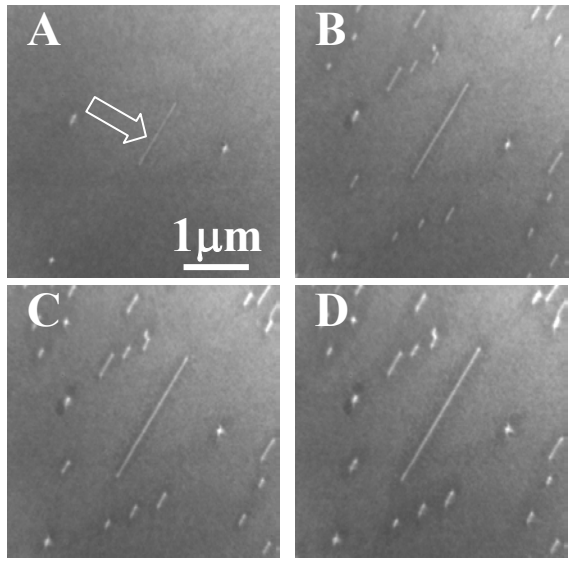


Fig. 2:
$CoSi_2$ nanowire growth on Si(110).



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